radial lead ceramic capacitor

Customer Name:

CUSTOMER:

Product name: radial lead ceramic capacitor

Specification and model:

CC4-0805N102J500F3 CT4-0805B473K500

CT4-0805Y104M500 CT4-0805Y224M500

CT4-0805Y334M500 CT4-0805Y474M500

CT4-0805B684K500 CT4-0805Y105M500

CT4-1206Y155M500 CT4-1206Y225M500

CT4-0805B683K500 CT4-0805B224K500

CT4-0805B334K500

SPECIFICATION：

Date: 2024-7-5

1.0 List of test instruments

LIST TEST FACILITIES

bridge IMPEDANCE BRIDGE	TH2617	China Tonghui CHINA
Insulation resistance tester I □R TESTER	TH2618	China with hui TONGHUI CHINA

2.0 Characteristics of the lead single-stone capacitor

GENERAL SPECIFICATION OF LEADS MULTI-LAYER CERAMIC CAPACITOR

dielectric material DIELECTRIC MATERIAL	NPO □N □	X7R □B □	Y5U □E □	Y5V □Y □
Media types DIELECTRIC TYPE	Class I dielectric STABLE CLASS I DIELECTRIC	Class II dielectric STABLE CLASS II DIELECTRIC		
behaviour of electricity ELECTRICAL PROPERTIES	Electrical performance is the most stable, basically does not change with temperature, voltage and time. WITH NEGLIGIBLE DEPENDENCE OF ELECTRICAL PROPERTIES ON TEMPERATURE □ VOLTAGE □ FREQUENCY AND TIME	The electrical performance is stable, the performance is not significant when the temperature, voltage and time change, and can make a larger capacitor than the capacity of NPO medium. WITH PREDICTABLE CHANGE OF PROPERTIES WITH TEMPERATURE □VOLTAGE □ FREQUENCY AND TIME □THIS DIELECTRIC IS FERRO—ELECTRIC AND OFFERS HIGHER CAPACITANCE RANGES THAN CLASS I	It has a relatively high dielectric constant, and is often used in the production of large capacity capacitor products with a relatively high nominal capacity, but its capacity stability is worse than X7R, and its capacity loss is sensitive to temperature, voltage and other conditions. WITH HIGH TWST DIELECRIC CONSSTANT AND GREATER VARIATION OF PROPERTIES WITH TEMPERATURE AND TEST CONDITIONS □VERY HIGH CAPACITANCE PER UNIT VOLUME
apply APPLICATION	It is suitable for circuits with high stability requirements, such as temperature compensation circuit, high-frequency shock circuit, etc. USE IN CIRCUITS REQUIRING STABLE	It is suitable for the separation, coupling, bypass and capacity stability requirements are not too high. USE AS BLOCKING □ COUPLING □BY--PASSING DISCRIMINATING ELEMENT	It is suitable for large capacity circuits, such as energy storage, memory circuit, etc. SUITED FOR BY—PASSING AND COUPLING APPLICATION SUCH AS STORE POWER AND MEMORY CIRCUIT	

	PERFORMANCE			
range of capacity CAPACITANCE RANGE	1pF—10nF	100pF—10μF	1nF—14.7μF	
temperature coefficient OPERATING TEMPERATURE	0±30ppm/℃ -55℃~+125℃	±15% -55℃~+125℃	+30%∽-56% -30℃~+85℃	+30%∽-80% -30℃~+85℃

3.0 product naming representation method

3.0.1 Radial lead capacitor

RADIAL LEADS MLCC

CT4—0805B104 K500 F3

↓↓↓↓↓↓↓

a b c d e f g

a:

產品類別 PRODUCT TYPE	
代號 CODE	類別 TYPE
CT4	Ⅱ 類徑向引線電容器 CLASS Ⅱ DIELECTRIC TADIAL LEADS
CC4	Ⅰ 類徑向引線電容器 CLASS Ⅰ DIELECTRIC RADIAL LEADS

b: 單位：英寸

UNIT：inch

尺寸規格（長×寬） SIZE（L×W）	
CODE	CHIP

0805	0.08×0.05
1206	0.12×0.06
1210	0.12×0.10
1812	0.18×0.12
2225	0.22×0.25
3035	0.30×0.35

c:

介質種類 DIELECTRIC	
N	COG（NPO）
B	X7R
Y	Y5V
E	Y5U（Z5U）

d:

標稱容量 CAPACITANCE
前兩位元數位爲有效數字，後一位元數位表示零的個數。 FIRST TWO DIGITS ARE SIGNIFICANT THIRD DIGIT IS NUMBER OF ZEROS. 例如： FOR EXAMPLE： 104=100000pF 5R6=5.6pF

e:

容量偏差 TOLERANCE	
B	±0.10pF
C	±0.25pF
D	±0.5pF
F	±1.0%
G	±2.0%
J	±5.0%
K	±10%
M	±20%
S	+50%—-20%

Z	+80%—-20%
P	+100%—-0%
B. C. D 適用 C<10PF B. C. D FOR C<10PF NPO: B. C. D. F. G. J. K. M X7R: K. M. S. Z Y5V/Z5U: M. S. Z. P	

f:

額定電壓 RATED VOLTAGE
代碼與標稱容量相似 THE CODE MEANING IS SME AS CAPACITANCE. 例如： FOR EXAMPLE： 250=25V 500=50V 101=100V

g:

包裝方式 Packaging Style		
編帶 Tape&Reel	P	盒帶包裝 Ammo
	T	卷盒包裝 Reel
散包裝 Bulk	F1	2.54mm
	F2	4.57mm
	F3	5.08mm
	F5	3.50mm

(F1, F2, F3, F5 indicates foot distance)

4.0 Electrical performance standard

THE STANDARD OF ELECTRONIC PROPERTIES

4.0.1 Inspection standards and conditions

Test Standard and Condition

Inspection project ITEM	acceptance standard TEST STANDARD		
	NPO □N □	X7R □B □	Y5V □Y □
capacitance Capacitance	Within the corresponding error limits WITHIN THE TOLERANCE	Within the corresponding error limits WITHIN THE TOLERANCE	Within the corresponding error limits WITHIN THE TOLERANCE
loss tangent Dissipation Factor	≤0.15%	≤3.5%	7.0% (below 220 nF) ≤10.0%□220~470nF □ ≤12.5%□470~1000nF □
insulation resistance Insulation Resistance	C ≤10NF IR>10000M Ω C>10NF R .C>100MΩ. μF	C ≤25NF IR>4000M Ω C>25 NF R.C>100MΩ. μF	
test condition TEST CONDITION			
Capacity test frequency FREQUENCY	1M HZ (C>1000PF,1KHZ)	1KHZ	
Capacity test voltage TEST VOLTAGE	1±0.2VDC		C<1μF, V: 0.3 ±0.2VDC C≥1μF, V: 1.0 ±0.2VDC
Insulation resistance test voltage TEST VOLTAGE OF IR	Nominal voltage, charge current not exceeding 50 milliamps The measuring voltage is equal to the rated voltage. The charging current may not exceed 50 mA		

standard atmospheric conditions Standard atmospheres conditions	Unless otherwise specified, the standard range of atmospheric conditions for measuring and testing is as follows: Ambient temperature 15℃~35 ℃ Relative humidity 45%~75% Air pressure 86Kpa ~106Kpa (860-1060mbar) If there may be any doubt on the results, measurements shall be made within the following limits: Ambient temperature 25℃±1 ℃ Relative humidity 48%~52% Air pressure 86Kpa ~106Kpa (860-1060mbar)
operating temperature range Operating temperature range	The operating temperature range is the range of ambient temperatures at which the capacitor can be operated continuously at rated voltage. Temperature compensation use: NPO -55℃~+125℃ X7R -55℃~+125℃ Y5V -25℃~+85℃ Z5U +10℃~+85℃

5.0 Reliability Test Project and Requirements:

ITEM AND REQUIREMENT OF RELIABILITY TEST

special case for investigation Item	performance requirement Properties Request		Test conditions and requirements Test Condition and Request
surface Appearance	No exception, clear logo. No abnormality, sign in focus		visualization Eyeballing
capacitance Capacitance	Within the specified allowable deviation range In permissible tolerance		test condition: Test condition Class I □ Test voltage: 1±0.2V Voltage Weekly: 1 MHz ± 10% (C 1000 pF) Frequency 1KHz ±10% □C>1000pF □ Class II □ Test voltage: 1±0.2V Voltage Weekly wave number: 1 KHz ± 10% Frequency 1KHz ±10%
insulation resistance Insulation Resistance	Within the allowable range In permissible tolerance		Test voltage: Rated voltage Voltage: rated voltage Duration: 60 ± 5s Duration; The charge and discharge current is limited to within 50mA Charge / discharge current is less than 50 mA.
withstand voltage Withstanding Voltage	**Interterminal Between terminals** Between terminal and lead **Between terminals and body**	There was no visible damage or breakdown after testing There shall be no evidence of damage or flash over during the test.	Apply the voltage: 2.5 times the rated voltage Voltage: 2.5 times rated voltage Time: 2s T=2s Charge and discharge current is limited to no more than 50 maA Charge / discharge current is less than 50 mA.
	No visible damage in appearance, with clear logo There shall be no visible defacing and sign in focus		

<table>
<tr>
<td>Welding heat resistance Withstanding solder heat</td>
<td>
<table>
<tr><td>temperature characteristic T.C. Temp.Char.</td><td>Δ C/C ≤</td></tr>
<tr><td>CG/CH/RH</td><td>±0.5% OR ±0.5pF</td></tr>
<tr><td>UJ/SL</td><td>±1% OR ±1pF</td></tr>
<tr><td>B</td><td>±10 %</td></tr>
<tr><td>F</td><td>±30 %</td></tr>
</table>
</td>
<td>Tin temperature: 260 ± 5□,
Tin review:
Duration of 10s
Duration
Recovery time: 24 ± 2 h
Recovery time;</td>
</tr>
<tr>
<td>solderability solder ability</td>
<td>Good touch on the lead
Leads shall excellently be covered with a new coating</td>
<td>Tin temperature: 230 ± 5□,
Tin review:
Duration of 2s
Duration</td>
</tr>
<tr>
<td>durability Life test</td>
<td>No visible damage in appearance, with clear logo
There shall be no visible defacing and sign in focus
<table>
<tr><td>temperature characteristic T.C. Temp.Char.</td><td>Capacity change Δ C/C ≤</td><td>loss tangent DF ≤</td><td>insulation resistance IR ≥ (MIN)</td></tr>
<tr><td>CG/UJ</td><td>±3% or ±1pF</td><td rowspan="2">1.5tg δ0</td><td rowspan="2">Ri ≥4000M Ω
OR
Ri.CR≥40s</td></tr>
<tr><td>CH/RH/SL</td><td>±5% or ±1pF</td></tr>
<tr><td>B</td><td>±20 %</td><td>5%</td><td rowspan="2">Ri ≥2000M Ω
OR
Ri.CR≥50s</td></tr>
<tr><td>F</td><td>±30 %</td><td>10%□≤100000pF □
12.5%
(220000~470000pF)
17.5% (≥1000000pF)</td></tr>
</table>
</td>
<td>Voltage: 1.5 UR
Voltage: 1.5 UR
Temperature: upper limit category temperature
Temperature: upper category temperature
The surge current shall be limited to within 50 mA
Charge/discharge current is less than 50mA
Duration: (duration) 1000- - - - - (+ 48h~ -0 h)
Recovery time: (recovery time) 24 ± 2 h</td>
</tr>
</table>

6.0 Radial lead capacitor size

SIZE CODE OF RADIAL LEADS MLCC

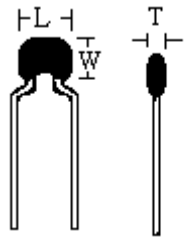
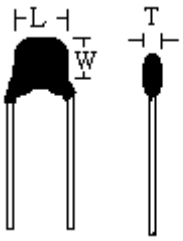
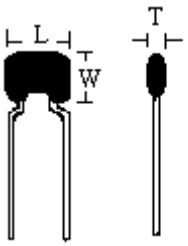
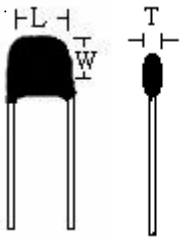
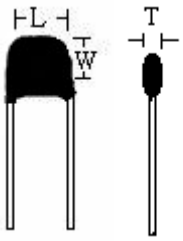
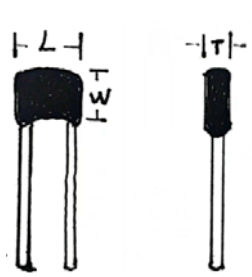
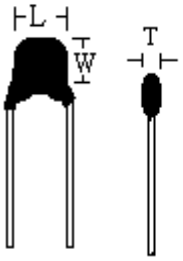
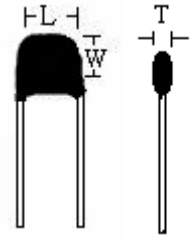
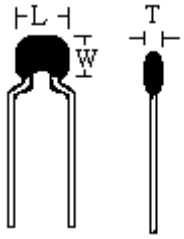
Lead spacing e=5.0±0.5mm

Lead diameter

Lead diameter Φ 0.5

7.0 Packaging and storage

PACKAGE AND STORAGE

L_{max} W_{max} T_{max}	3.8±0.5mm 3.9±0.5mm 2.6±0.5mm	4.2±0.5mm 4.8±0.5mm 2.8±0.5mm	4.9±0.5mm 4.1±0.5mm 2.8±0.5mm	3.6±0.5mm 4.2±0.5mm 2.5±0.5mm	6.3±0.5mm 5.2±0.5mm 3.4±0.5mm
					
dimensions	CT4-0805B ⋯F3		CT4-1206 B ⋯F3	CT4-0805B ⋯F1	CT4-1812B ⋯F3
L_{max} W_{max} T_{max}	4.9±0.5mm 5.0±0.5mm 3.2±0.5mm	4.1±0.5mm 4.7±0.5mm 2.4±0.5mm	7.5±0.5mm 6.8±0.5mm 3.8±0.5mm	3.5±0.5mm 3.9±0.5mm 2.5±0.5mm	
					
size specifications	CT4-1210 B ⋯F1	CT4-0603B ⋯F3	CT4-2220B ⋯F5	CT4-0603B ⋯F3	

7.1 Packaging form of radial lead ceramic capacitor

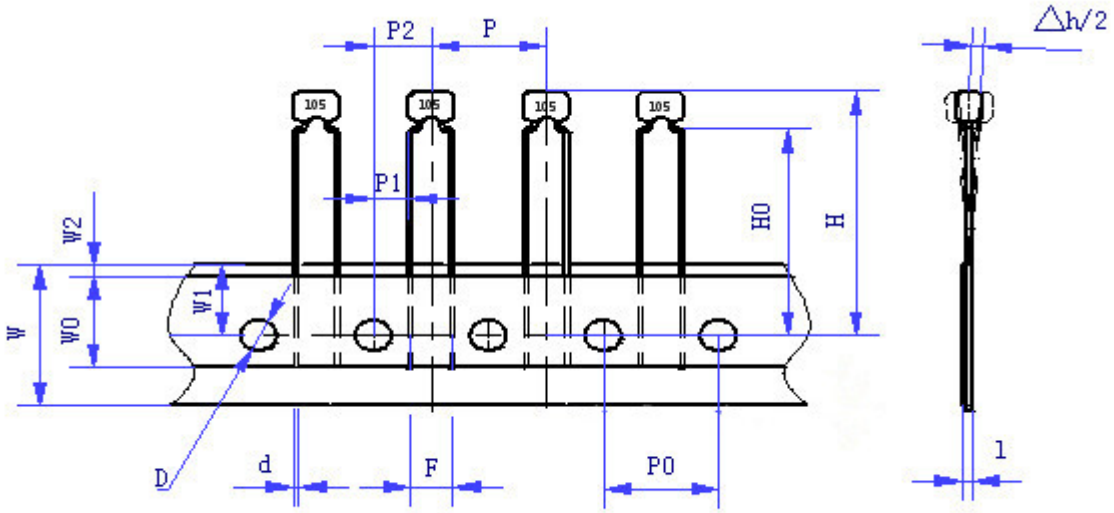
RADIAL LEADS MLCC PACKAGING STYLE

Bulk material packaging: (BULK)

Normal foot length (LEADS IN NORMAL LENGTH) -1000 pcs / pack

Long foot (LONG LEADS, 25mm) - -500 pcs / pack

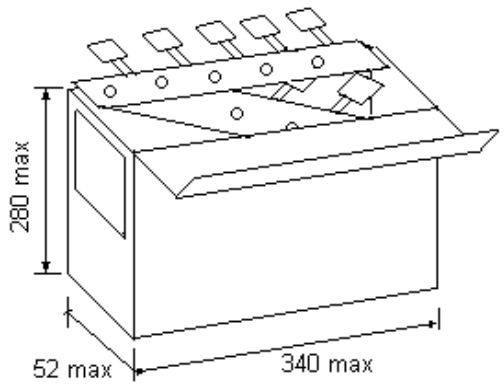
Ribbon packaging: (TAPE & REEL)



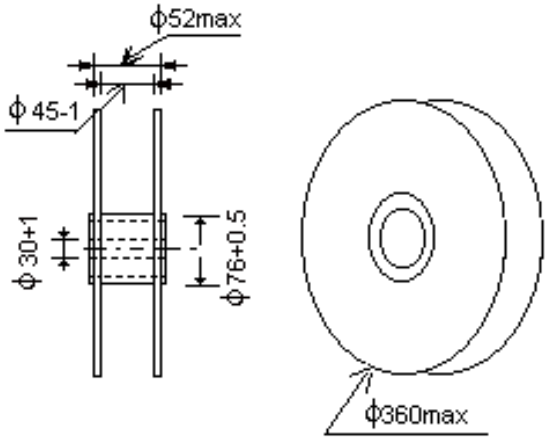
Code	P	P0	P1	P2	d	□ h	W	W0	W1	W2	H	H0	I	D
Dim	12.7	12.7	3.85/5.1	6.35	0.5	0	18	8	9	3.0	32.25	15-20	1.0	4.0
Tol	±1	±0.8	±0.7	±1.3	±0.1	±2	±0. 8	±1	±0.5	Max	Max	±0.5	Max.	Max.

Note: P1=3.85mm for F=5.0mm; P1=5.1mm for F=2.5mm

Ammo Packaging



Reel Packaging



7.2 Labeling and identification

LABEL AND SYMBOL

The pouch is labeled and includes the following contents:

Label is on □in □ the package, It includes □

① Model specification ② Nominal capacity ③ quantity ④ Error level ⑤ batch number

①PART NO ②CAPACITANCE ③QUANTITY ④TOLERANCE ⑤LOT NO

⑥ Rated working voltage ⑦ packaging date ⑧ temperature coefficient ⑨ QC stamp
⑥RATED VOLTAGE ⑦PACKAGE DATE ⑧TEMPERATURE COEFFICIENT ⑨QC MARK

7.3 Storage mode

STORAGE METHODS

Storage conditions: temperature 5℃ - -35℃ relative humidity: 45% - -75%

Storage period: 1 year

Storage condition: Temperature: 5℃--35℃

Relative humidity: 45%--75%

Storage period: one year